CLIMATE ANALYSIS CENTER

WEEKLY CLIMATE BULLETIN

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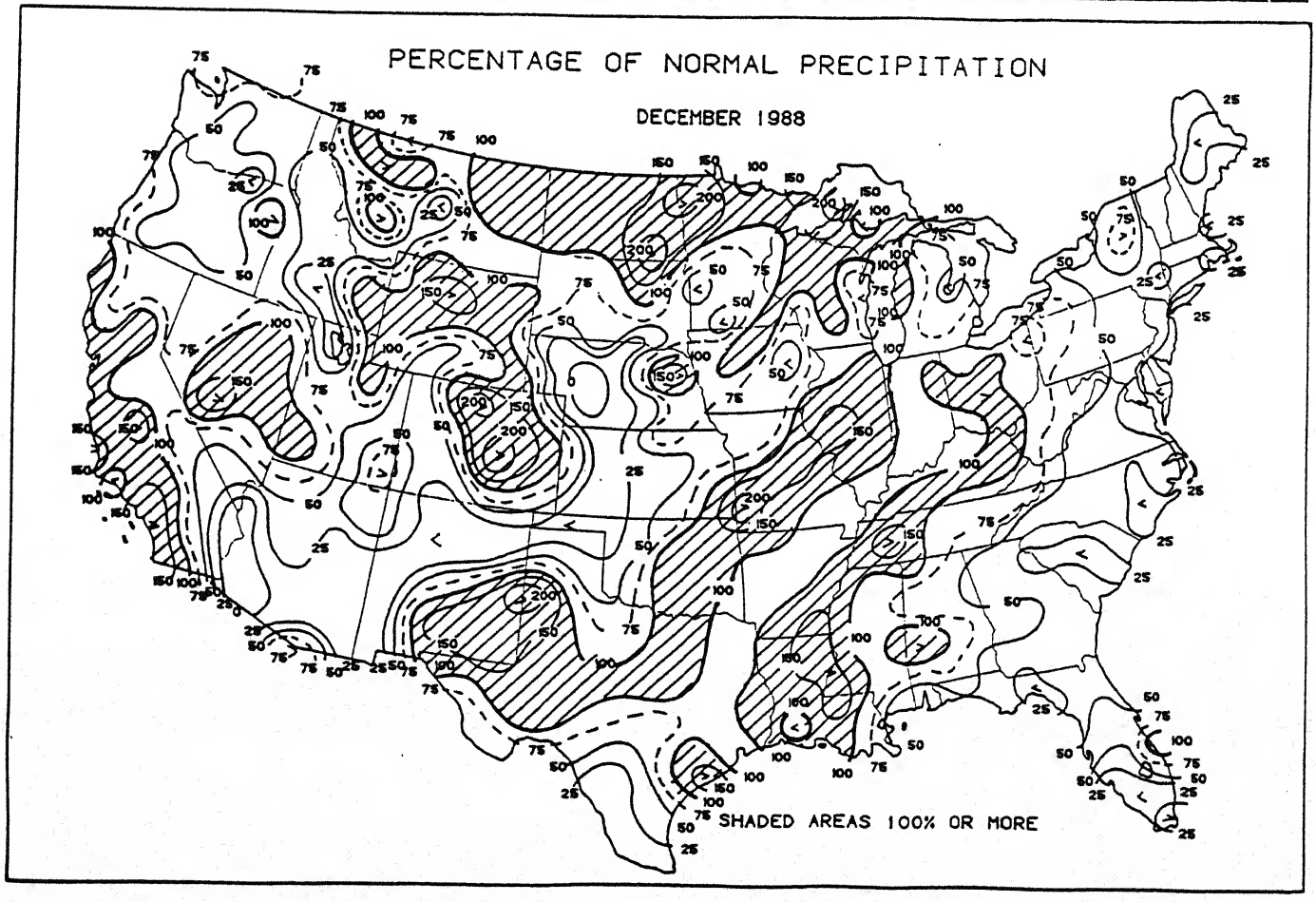

EXTREMELY DRY WEATHER DURING THE FIRST THREE WEEKS OF DECEMBER GREATLY CONTRIBUTED TO SUBNORMAL MONTHLY PRECIPITATION THROUGHOUT MOST OF THE LOWER 48 STATES, ESPECIALLY ALONG THE ATLANTIC COAST, IN THE CENTRAL GREAT PLAINS, AND THE PACIFIC NORTHWEST. REFER TO THE U.S. MONTHLY CLIMATE SUMMARY STARTING ON PAGE 9 FOR FURTHER DETAILS.

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

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This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

Highlights of major global climatic events and anomalies.
U.S. climatic conditions for the previous week.
U.S. apparent temperatures (summer) or wind chill (winter).
Global two-week temperature anomalies.
Global four-week precipitation anomalies.
Global monthly temperature and precipitation anomalies.
Global three-month precipitation anomalies (once a month).
Global twelve-month precipitation anomalies (every 3 months).
Global temperature anomalies for winter and summer seasons.
Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

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GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF JANUARY 7, 1989

[Approximate duration of anomalies is in brackets]

1. Northwestern Canada and Alaska:

ABNORMALLY MILD WEATHER PERSISTS.

Unusually mild conditions, with temperatures approaching 12.2°C (22.0°F) above normal, were reported in the region [4 weeks].

2. Southwestern United States:

AREA UNUSUALLY COLD.

Temperatures were as much as 5.2°C (9.4°F) below normal in the Southwest [3 weeks], while Los Angeles experienced a rare snowfall event [Episodic Event].

3. Argentina:

VERY WARM AND DRY.

Little or no precipitation fell in northern Argentina during the past week [28 weeks]. The very dry conditions were aggravated by temperatures up to 6.5°C (11.7°F) above normal [7 weeks].

4. Central Europe:

WETNESS ENDS.

A second week of very dry conditions, generally less than 18.6 mm (0.73 inch) of precipitation, ended the wetness in the region [Ended at 5 weeks].

5. Greece, Turkey, and the Middle East:

COLD SPELL CONTINUES.

Cold weather prevailed across much of the eastern Mediterranean, with temperatures as much as 8.2°C (14.8°F) below normal [4 weeks].

6. Siberia:

MILD CONDITIONS LINGER.

The mild weather regime, with temperatures reaching 12.8°C (23.0°F) above normal, persisted across Siberia [13 weeks].

7. Eastern China:

RAINS BRING RELIEF.

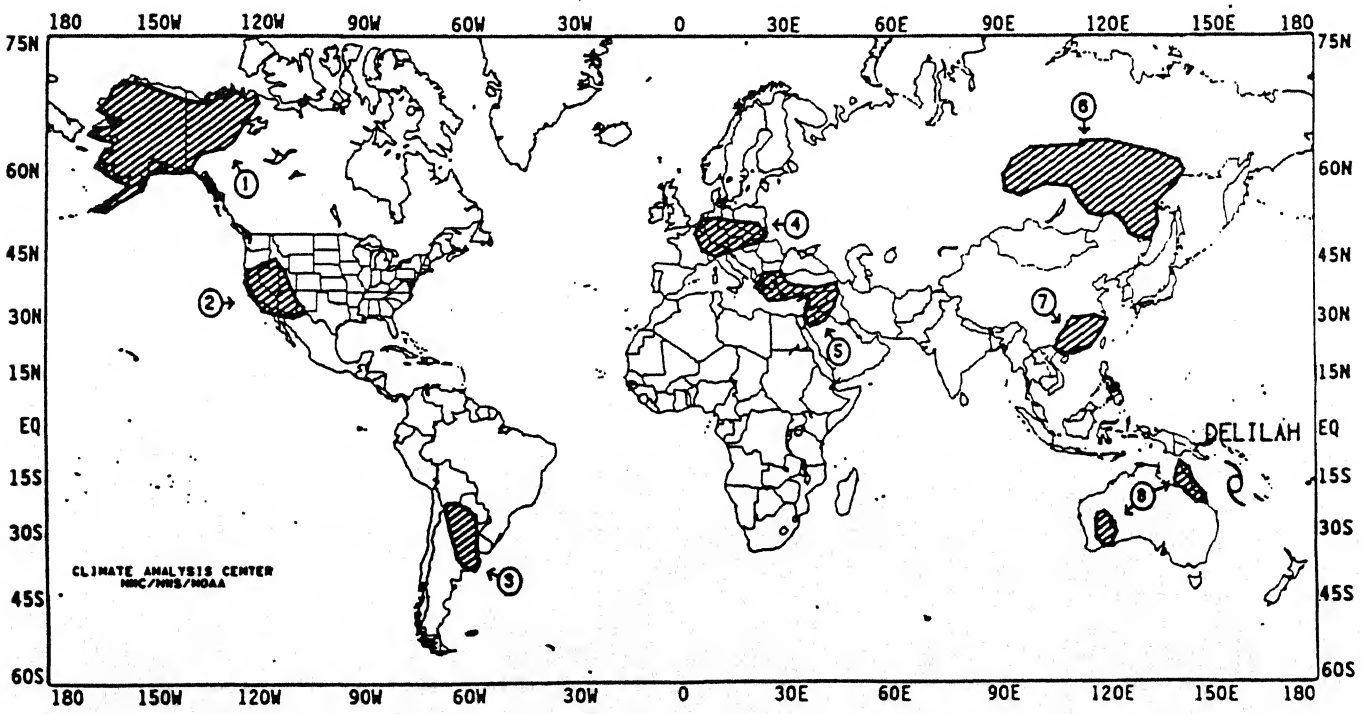
Heavy precipitation, up to 82.3 mm (3.24 inches), fell in southeastern China. Some areas along the coast are now abnormally wet [Ended at 14 weeks].

8. Australia:

WET SPELL DIMINISHES.

Although isolated areas of Queensland received around 93.0 mm (3.66 inches) of rain, most areas had amounts less than 39.6 mm (1.56 inches) as the wet weather pattern eased [10 weeks].

(NOTE: Text precipitation amounts and temperature departures are this week's values).



Approximate locations of the major anomalies and events described above are shown on this map. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, longer term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF JANUARY 1 THROUGH JANUARY 7, 1989.

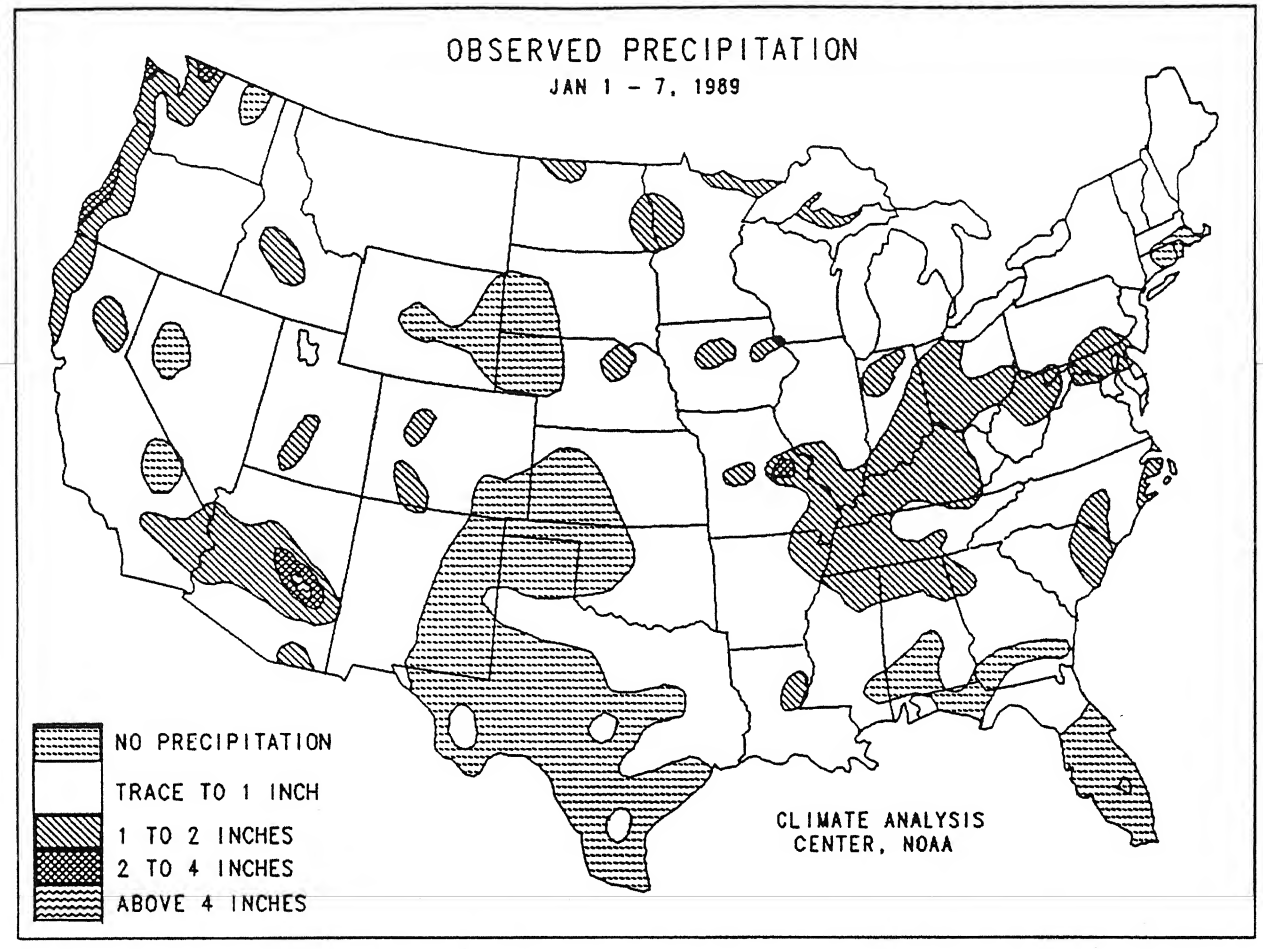
Early in the week, a Pacific storm system brought light to moderate precipitation to the Far West, including a rare snowfall event at Los Angeles, CA. As the system progressed eastward, it rapidly intensified and dumped over a foot of snow on portions of the northern Great Plains and upper Midwest (24 inches at Fargo, ND). Gusty winds and bitterly cold arctic air (-23°F at Bismarck and Grand Forks, ND, and Havre, MT) exacerbated the region's conditions with blowing and drifting snow and extremely dangerous wind chills (-63°F at Minot, ND). In the East, a weaker storm system spread freezing rain, sleet, and light snow across parts of New England and the mid-Atlantic, with sections of New Jersey receiving between 4 and 6 inches of snow.

Most of the contiguous United States reported light to moderate precipitation, but very few areas measured heavy (more than 2 inches) amounts (see Table 1). According to the River Forecast Centers, between 1 and 3 inches of precipitation fell along the Pacific Coast and on parts of the Cascade and Sierra Nevada Mountains. Sections of central Arizona and a few locations in the central Rockies received heavy precipitation in association with the Pacific storm system. Greatest precipitation totals in the eastern half of the nation occurred in the Tennessee Valley as stations in northern Alabama, northwestern Georgia, and southern Tennessee recorded up to 3.4 inches of rain. In Alaska and Hawaii, precipitation was generally light as only Hilo, HI observed heavy rainfall. Light to moderate precipitation fell on most of the country west of the Rockies, on the northern half of the Great Plains, and throughout the U.S. east of the Mississippi River with the exception of the Gulf and New England Coasts. Little or no precipitation was reported in the central and southern High Plains, the southern half of the Great Plains, in much of Florida, eastern New England, and along the Gulf Coast.

Southwesterly flow ahead of an upper-air trough of low pressure centered over the southern Pacific Coast continued to bring unseasonably mild and sometimes warm weather to much of the eastern two-thirds of the nation, especially in the central and southern Great Plains and along the western Gulf Coast where temperatures were between 10° and 19°F above normal (see Table 2). Dozens of stations in the southern Great Plains and Southeast tied or established new daily record maximum temperatures during the week as the 60°F mark extended as far north as Nebraska, Illinois, Indiana, and Ohio (see Figure 1). In southern Texas, temperatures more representative of late spring than early winter were recorded as readings soared into the upper eighties and lower nineties. Above normal temperatures remained in Alaska for the fifth straight week with positive departures as great as +22°F. In contrast, colder conditions (departures of -5° to -9°F) continued in the Southwest for the third consecutive week while temperatures moderated in the Pacific Northwest and Rockies from the previous week. Farther east, bitterly cold arctic air prevailed in New England as temperatures averaged between 5° and 14°F below normal (see Table 2). Lows dipped below -20°F in parts of Maine, New Hampshire, and Vermont (see Figure 2). Elsewhere, slightly below normal temperatures were found in southeastern Alaska and the Great Lakes region.

TABLE 1. Selected stations with more than one and one-third inch of precipitation for the week.

Station	Amount(In)	Station	Amount(In)
Hilo/Lyman, HI	4.08	Adak, AK	1.54
North Bend, OR	2.41	Paducah, KY	1.53
Quillayute, WA	2.28	Louisville, KY	1.50
Eureka, CA	1.93	Jonesboro, AR	1.50
Cape Girardeau, MO	1.89	Hancock, MI	1.48
Jackson, TN	1.75	Cape Hatteras, NC	1.41
St. Louis, MO	1.69	Dayton, OH	1.41
Muscle Shoals, AL	1.67	Memphis NAS, TN	1.39
Cincinnati, OH	1.58	Hopkinsville, KY	1.37
Bowling Green, KY	1.58	Charleston, SC	1.34


OBSERVED PRECIPITATION
JAN 1 - 7, 1989
NO PRECIPITATION
TRACE TO 1 INCH
1 TO 2 INCHES
2 TO 4 INCHES
ABOVE 4 INCHES
CLIMATE ANALYSIS
CENTER, NOAA

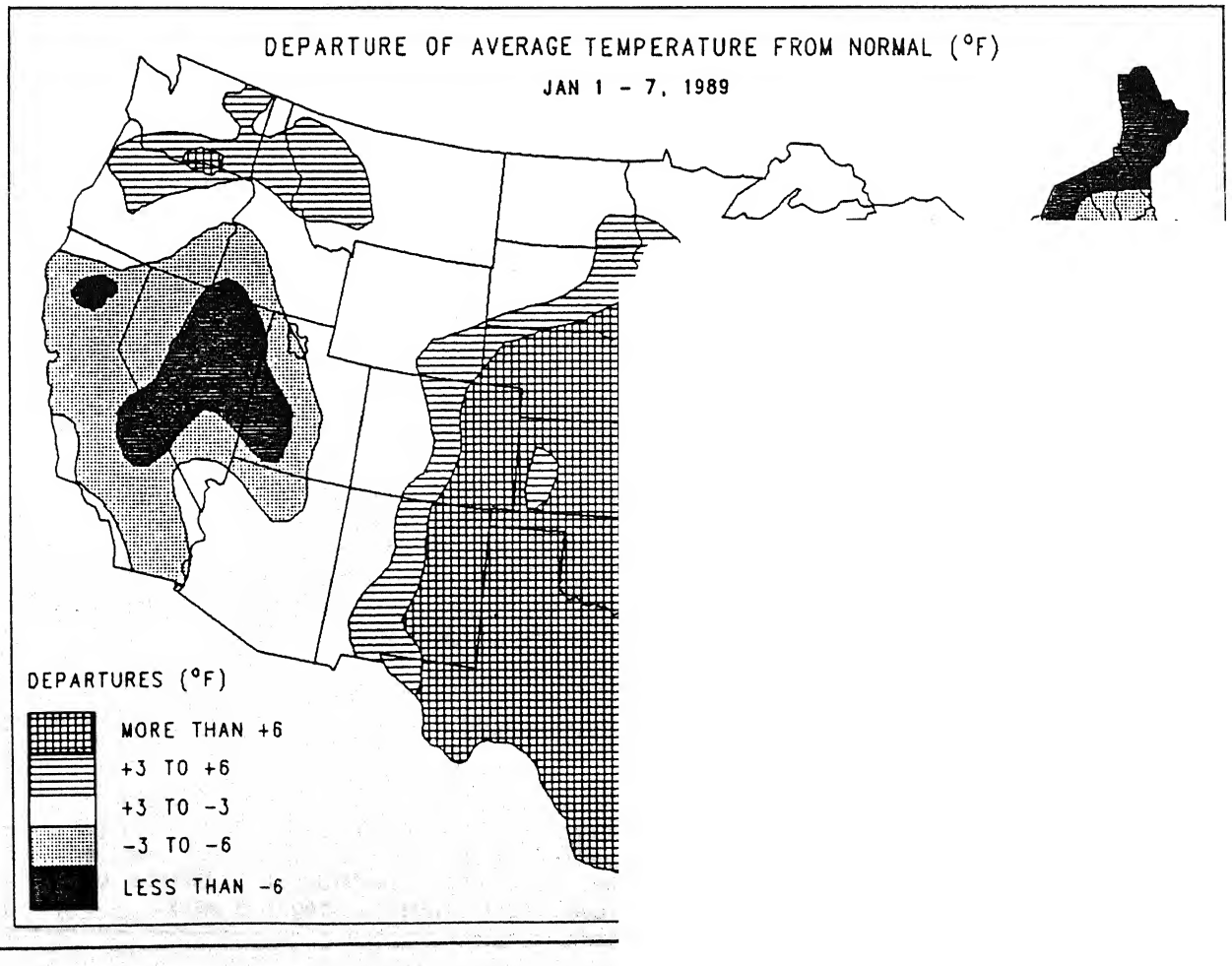

DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)
JAN 1 - 7, 1989
DEPARTURES (°F)
MORE THAN +6
+3 TO +6
+3 TO -3
-3 TO -6
LESS THAN -6

TABLE 2. Selected stations with temperatures averaging 12.0°F or more ABOVE normal for the week.

Station	TDepNml	AvgT(°F)	Station	TDepNml	AvgT(°F)
McGrath, AK	+21.9	10.3	Austin/Bergstrom AFB,TX	+13.9	63.9
McAllen, TX	+18.9	77.6	Houston, TX	+13.7	66.0
Alice, TX	+17.4	72.5	Lufkin, TX	+13.3	61.9
Corpus Christi, TX	+16.7	72.1	Abilene, TX	+13.3	56.6
Beeville NAS, TX	+16.7	71.6	King Salmon, AK	+13.3	25.3
Victoria, TX	+16.1	68.8	Palacios, TX	+13.2	66.6
Fairbanks, AK	+15.6	2.6	Dallas/Love Field, TX	+13.1	58.2
Bettles, AK	+15.4	4.3	Port Arthur, TX	+13.0	64.9
Brownsville, TX	+15.1	75.5	Lafayette, LA	+13.0	64.8
Baton Rouge, LA	+15.1	65.9	Dallas/Ft. Worth, TX	+13.0	57.0
Austin, TX	+15.0	64.2	Biloxi/Keesler AFB, MS	+12.7	65.6
Barter Island, AK	+15.0	1.6	Del Rio, TX	+12.7	62.9
Barrow, AK	+14.8	1.6	Waco, TX	+12.4	58.7
Unalakleet, AK	+14.5	16.6	Bethel, AK	+12.3	17.0
Kotzebue, AK	+14.4	11.3	New Orleans/Moisant, LA	+12.2	64.9
Kingsville NAS, TX	+14.3	74.2	Alexandria/England AFB,LA	+12.1	60.3
San Antonio, TX	+14.3	64.6	Valparaiso/Eglin AFB, FL	+12.0	64.0
College Station, TX	+14.2	63.4	San Angelo, TX	+12.0	57.4
Lake Charles, LA	+14.0	64.6			

TABLE 3. Selected stations with temperatures averaging 5.0°F or more BELOW normal for the week.

Station	TDepNml	AvgT(°F)	Station	TDepNml	AvgT(°F)
Caribou, ME	-12.9	-1.4	Rome/Griffiss AFB, NY	-6.4	15.1
Massena, NY	-10.2	5.3	Syracuse, NY	-6.3	17.8
Augusta, ME	-10.1	10.1	Burlington, VT	-6.0	11.9
Bangor, ME	- 9.9	9.1	Winnemucca, NV	-5.9	23.1
Rumford, ME	- 9.6	7.7	Worcester, MA	-5.5	18.4
Elko, NV	- 9.4	14.6	Lebanon, NH	-5.2	12.9
Montpelier, VT	- 8.5	8.0	Boston/Logan, MA	-5.2	25.0
Ely, NV	- 7.9	16.2	Fresno, CA	-5.2	39.2
Redding, CA	- 7.9	37.8	Portland, ME	-5.1	17.1
Cedar City, UT	- 7.4	21.7	Boise, ID	-5.1	24.2
Mt. Washington, NH	- 7.0	-0.9	Bakersfield, CA	-5.1	42.0
Utica, NY	- 6.6	14.5	Daggett, CA	-5.0	42.4

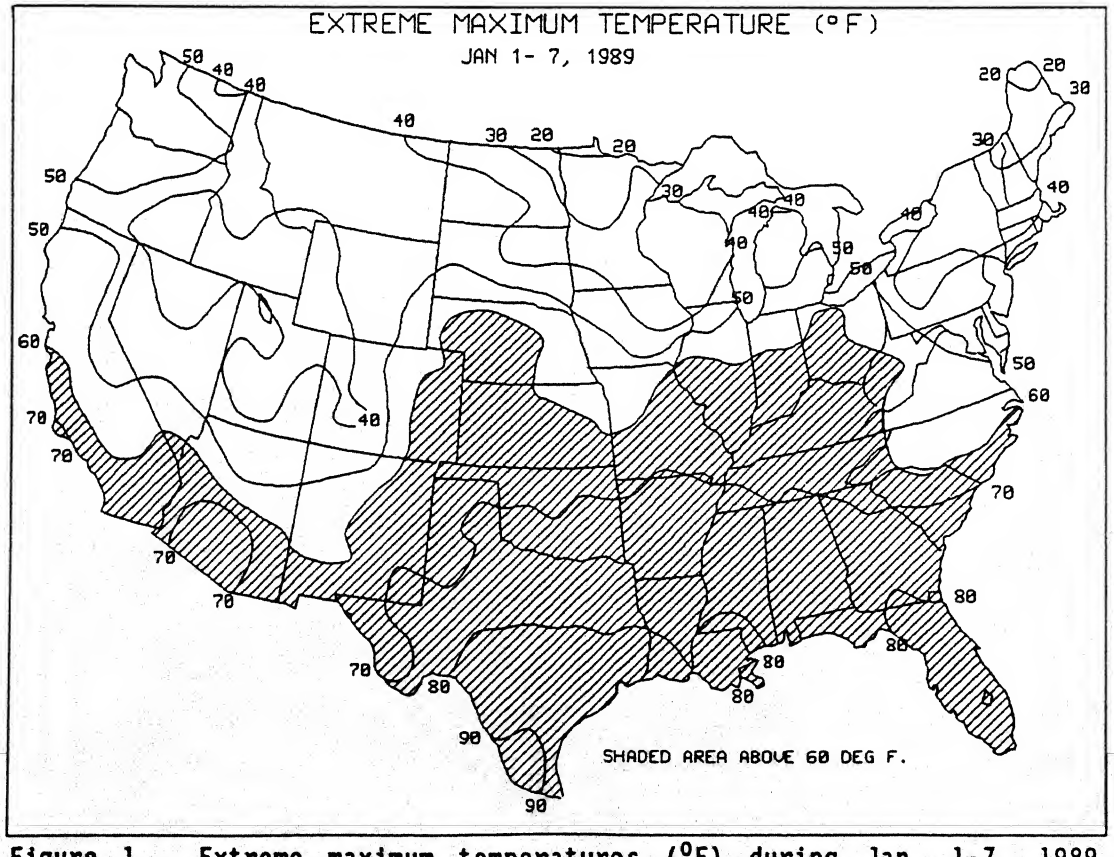


Figure 1. Extreme maximum temperatures (°F) during Jan. 1-7, 1989. Unseasonably warm weather (highs >80°F) covered Texas and the Gulf Coast, while mild conditions (highs >60°F) extended northward into the Midwest. Dozens of stations tied or set new daily record maximum temperatures during the week.

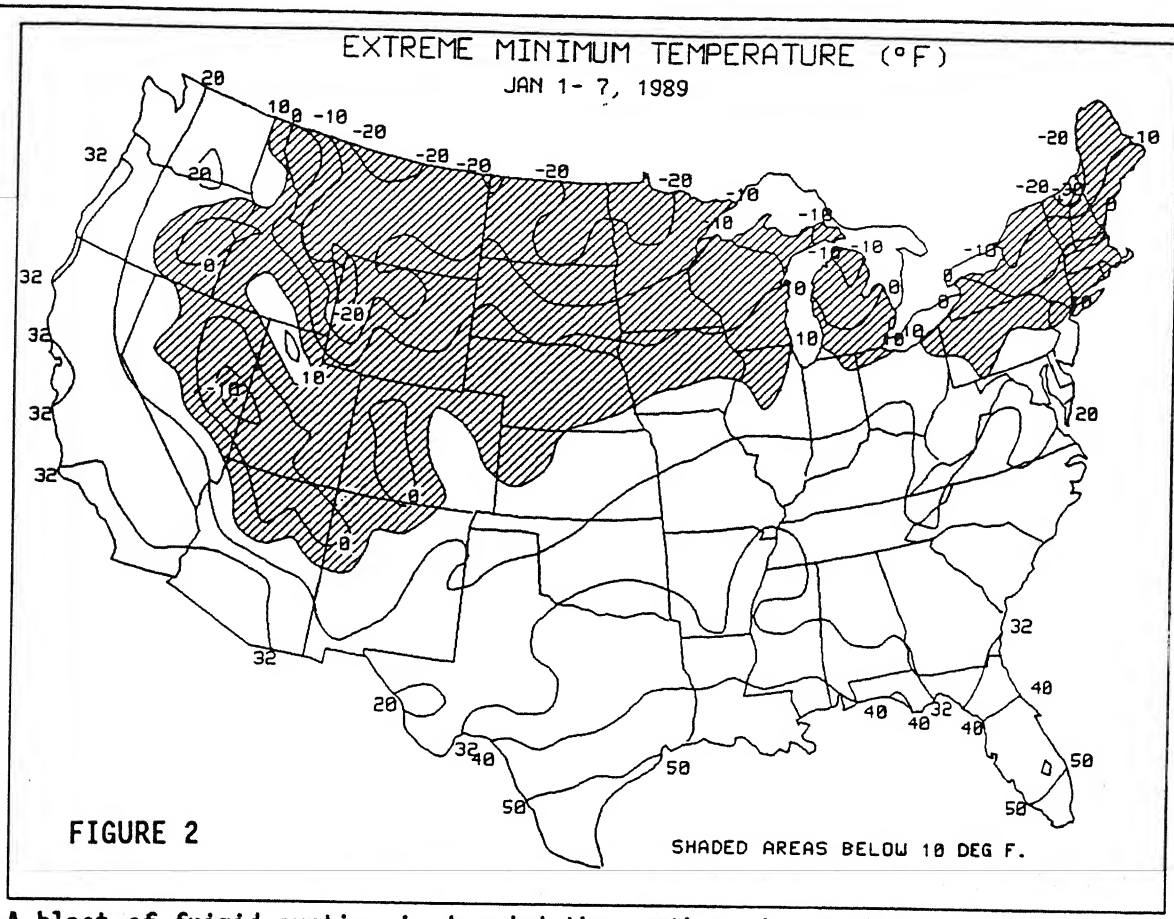
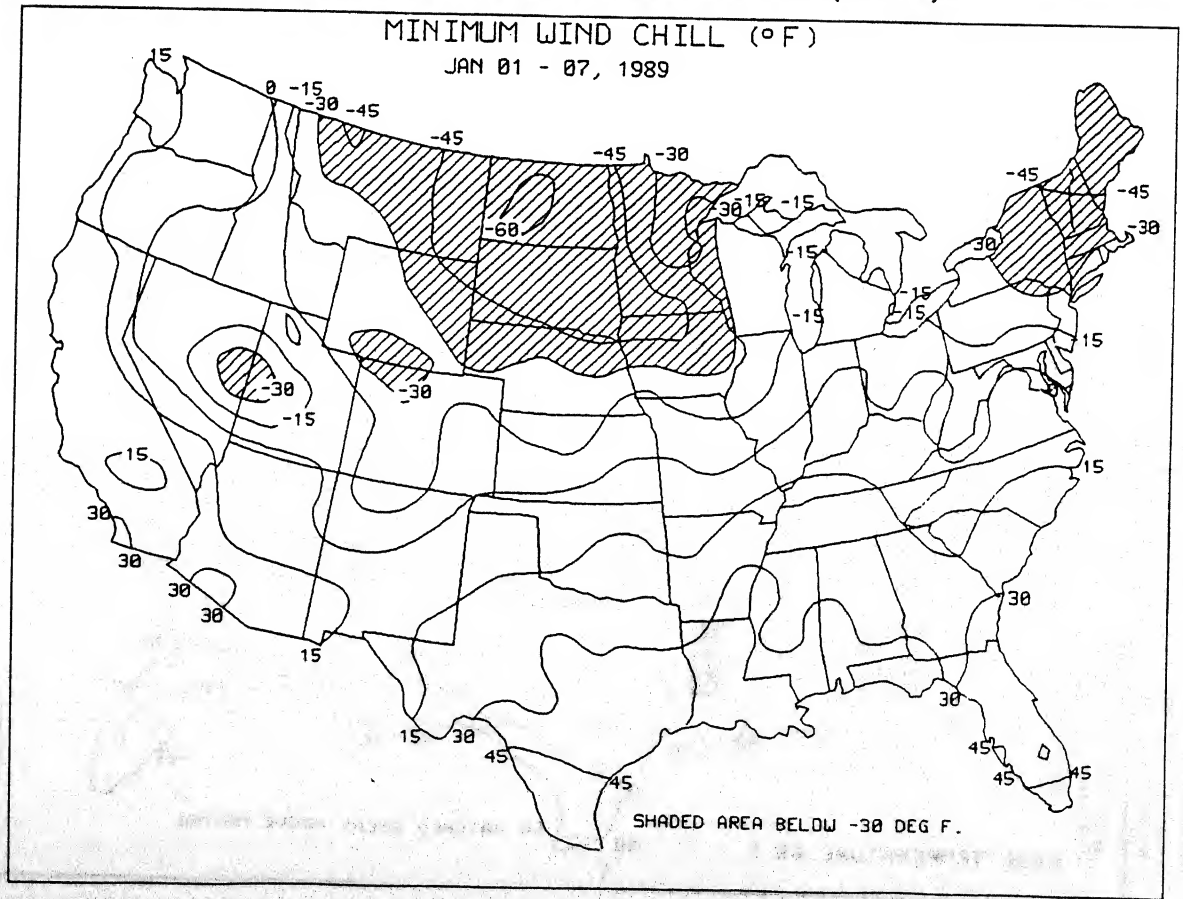
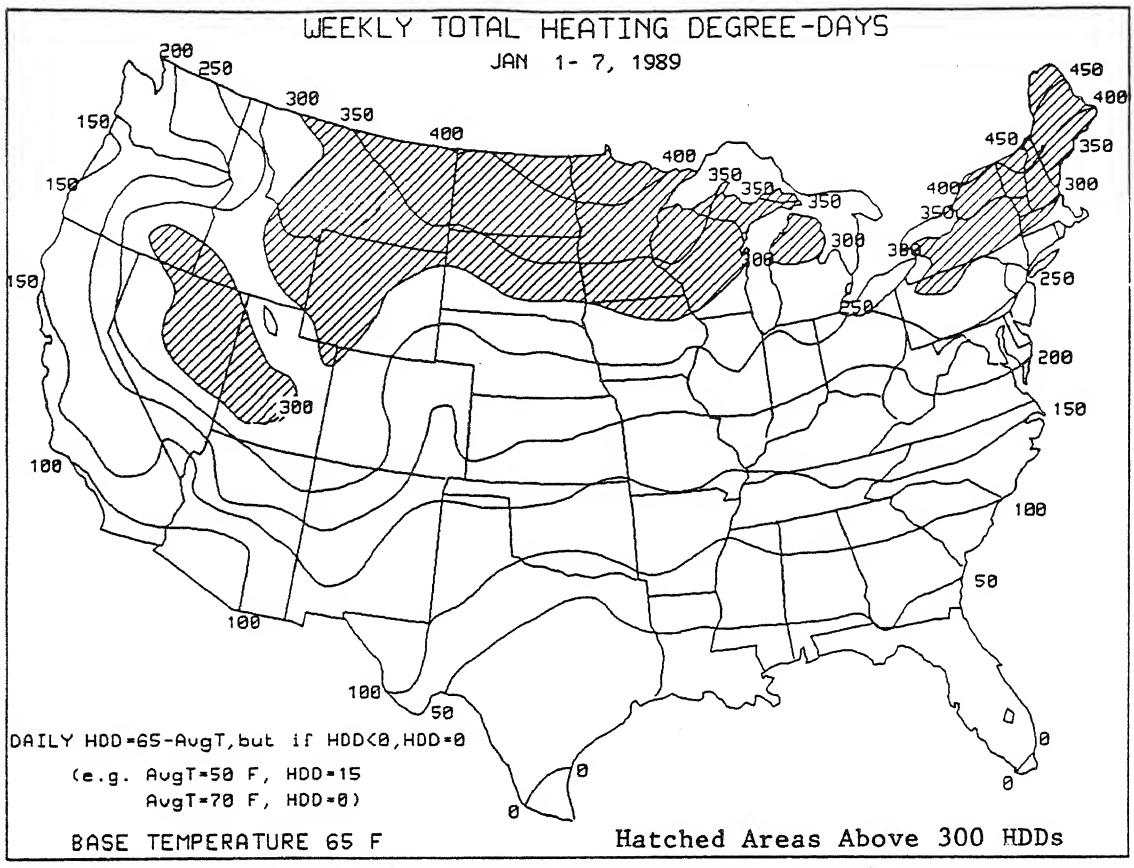


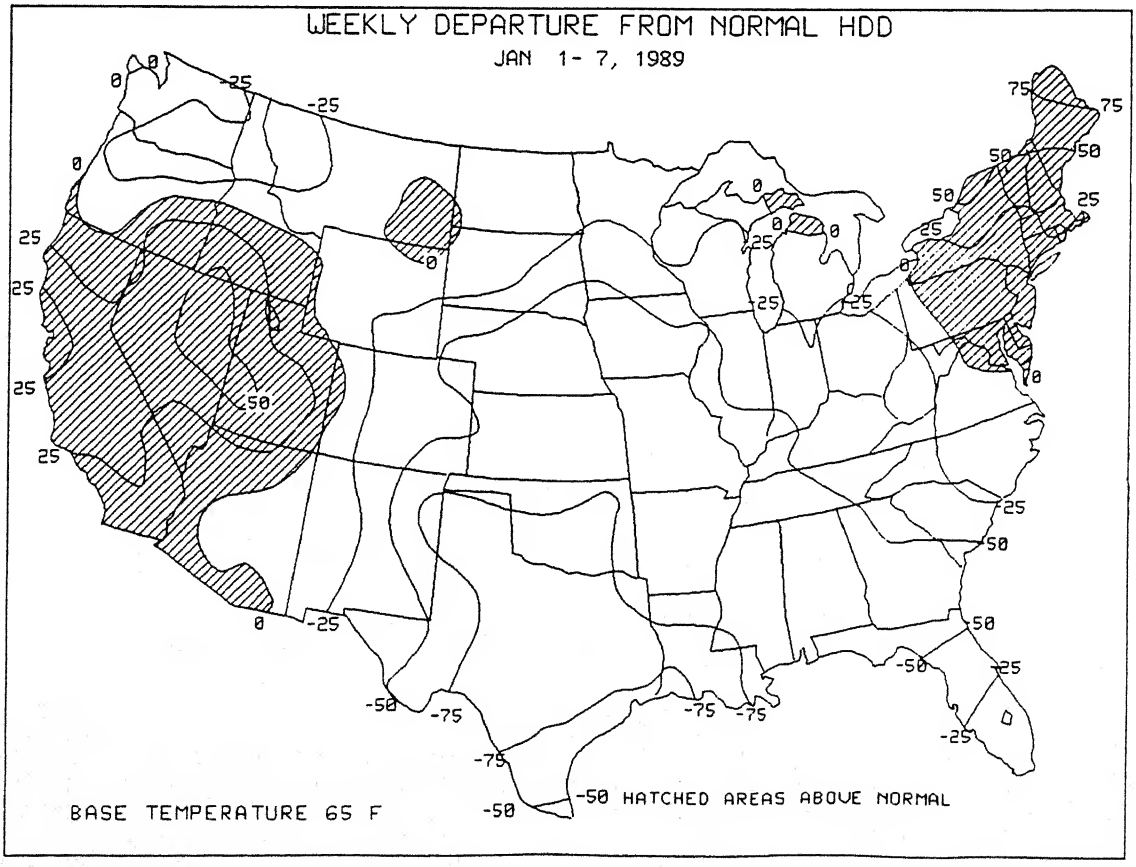
FIGURE 2

A blast of frigid arctic air invaded the northern Great Plains, upper Midwest, and New England and sent lows plummeting below -20°F in portions of the area (top). Subzero temperatures and gusty winds from an intense storm system over the Great Lakes created extremely dangerous wind chills (less than -30°F) throughout the northern Great Plains and upper Midwest (bottom).



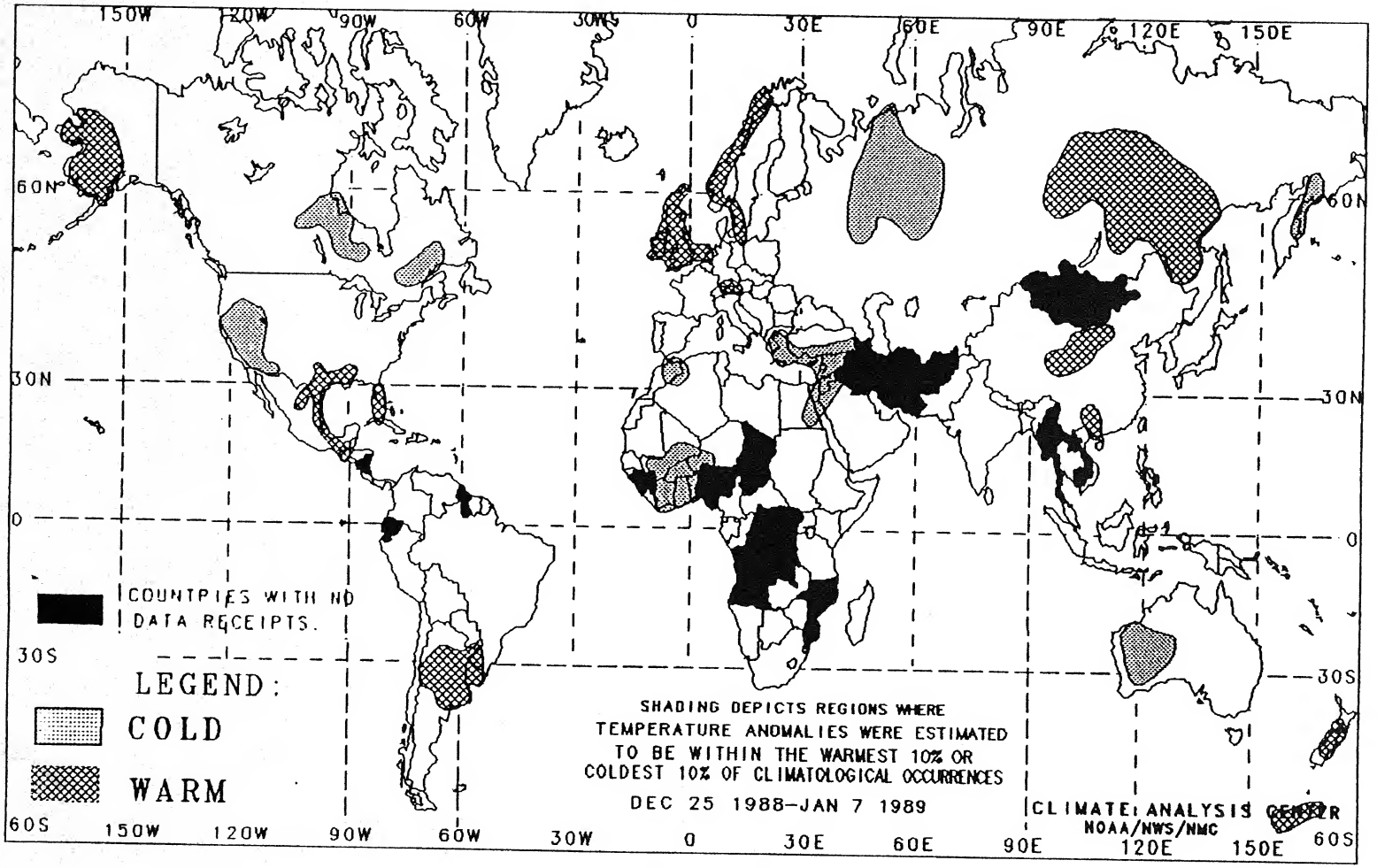


As the heating season normally peaks by late January or early February (during the coldest time of the year), weekly heating usage can exceed 400 HDD's, similar to this week's values in North Dakota, Minnesota, and Maine (top). The weekly heating demand was generally less than normal across much of the U.S. as milder conditions covered the central and southern portions of the nation (bottom). In fact, unseasonably warm weather in Texas and along the Gulf Coast required some air-conditioning usage (up to 89 CDDs at McAllen, TX).



GLOBAL TEMPERATURE ANOMALIES

2 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

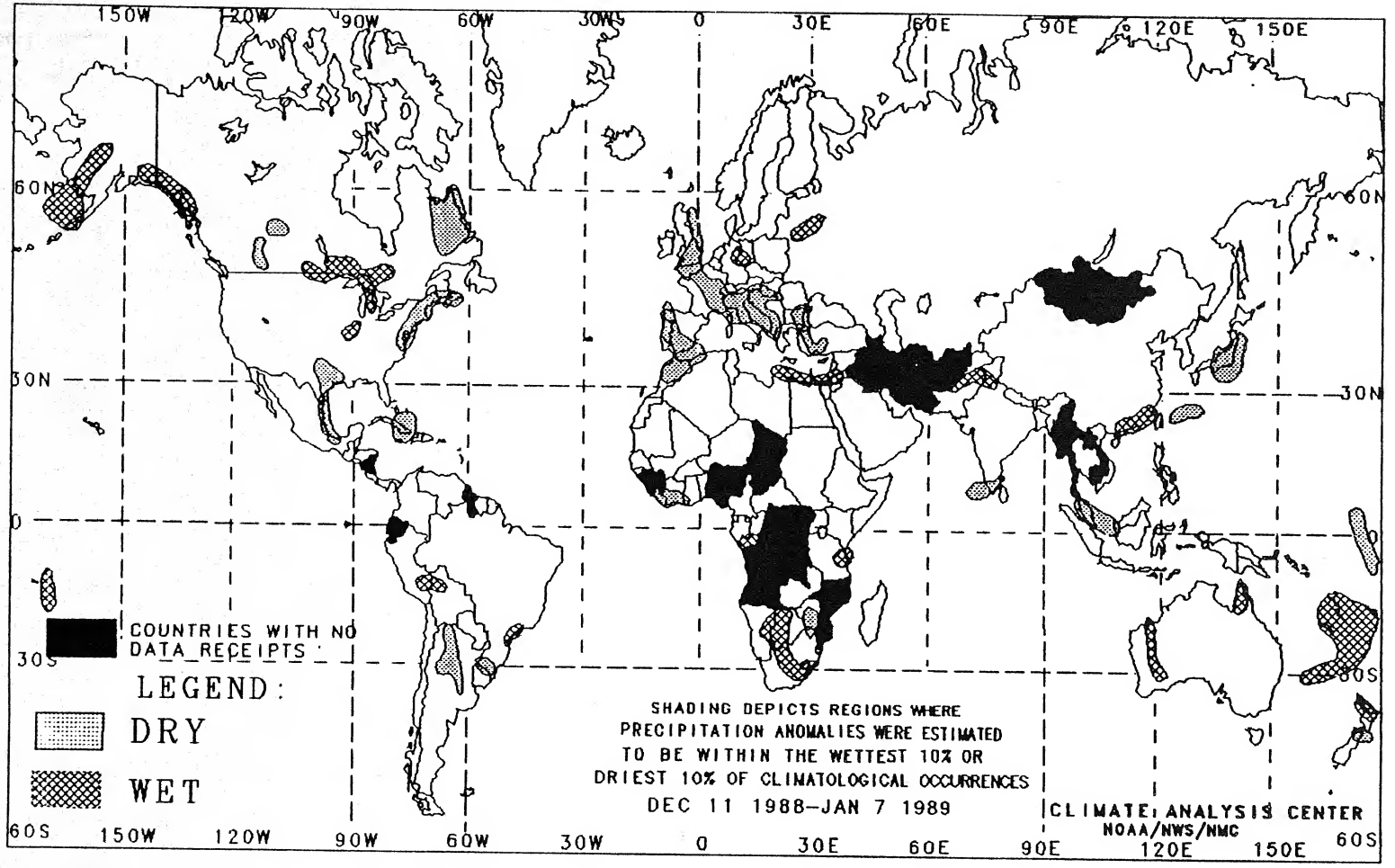
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining precentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

GLOBAL PRECIPITATION ANOMALIES

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

UNITED STS MONTHLY CLIMATE SUMMARY

DECEMBER 1988

Relatively dry and trawather during the first three weeks of Deceas replaced by a series of storm systems lat month. The early December dryness helpeantee subnormal monthly precipitation for nthe U.S. A snow storm early in the month strg Island while late December snows blanket Lake City and paralyzed Chicago's O'Haort. Strong cold fronts triggered severe metimes violent thunderstorms that spawneral tornadoes in the South from LouisiaTennessee and produced near-hurricane gusts at many stations in the mid-Atlantin. Temperatures averaged near normal e exception of unseasonably mild weathne central Great Plains and Alaska and abnccold conditions in the Great Basin and northekies.

Above normal precipitati confined to a few areas in the lower 48 statesal California; the northern Great Plains ar extreme upper Midwest; scattered sectionie Rockies; from western Texas northeastw Illinois; and in portions of the lower Missi Tennessee, and Ohio Valleys (see Table 1). Eugh the northern Great Plains observed abomal precipitation, totals were generally less thinch and did little to reduce long-term moisturits. According to the River Forecast Centers, rains (between 6 and 10 inches) were measurarts of Louisiana, southwestern Mississippi, astern Tennessee (see Figure 1). Farther west, stations along the Pacific Northwest Coast a the Cascades recorded up to 19.8 inches obitation; however, most of this region experd below normal monthly amounts (see front and Figure 2). In Alaska and Hawaii, a ma of the stations reported surplus December tation.

Extensive areas of belomal precipitation covered much of the contiguoited States, most notably in the Pacific Northwest, the central Great Plains, and along the Atlantic Coast, the latter two areas generally receiving less than two inches of precipitation. Many stations in these regions measured less than half the normal December precipitation (see front cover and Table 2). This month's dryness terminated a period of above normal precipitation which had prevailed since July over most of the eastern half of the U.S.

A deep trough of low pressure anchored over the Far West during late December brought unseasonably mild southwesterly flow to the central and southern United States. Greatest positive temperature departures (more than +4.0°F) occurred in southern Texas, north-central Oklahoma, and in most of Kansas and Nebraska (see Figures 3 and 4). Unusually mild conditions also prevailed across most of Alaska in contrast to the bitterly cold weather of October and November as temperatures averaged as much as 15.5°F above normal (see Table 3). Regionally, the East-South Central, West-North Central, and West-South Central monthly temperatures averaged only slightly above normal, similar to the U.S. overall.

The Intermountain West experienced cold conditions during the second half of the month as December's temperatures averaged more than 4.0°F below normal in eastern Oregon, southern Idaho, northeastern Nevada, and western Utah (see Table 4). Bitterly cold weather in the East during the second week of December was offset by a mild regime for the remainder of the month, resulting in near normal monthly temperatures with the exception of extreme northern New England. December's temperatures for the Middle and South Atlantic, New England, Mountain, Pacific, and East-North Central regions were slightly below normal.

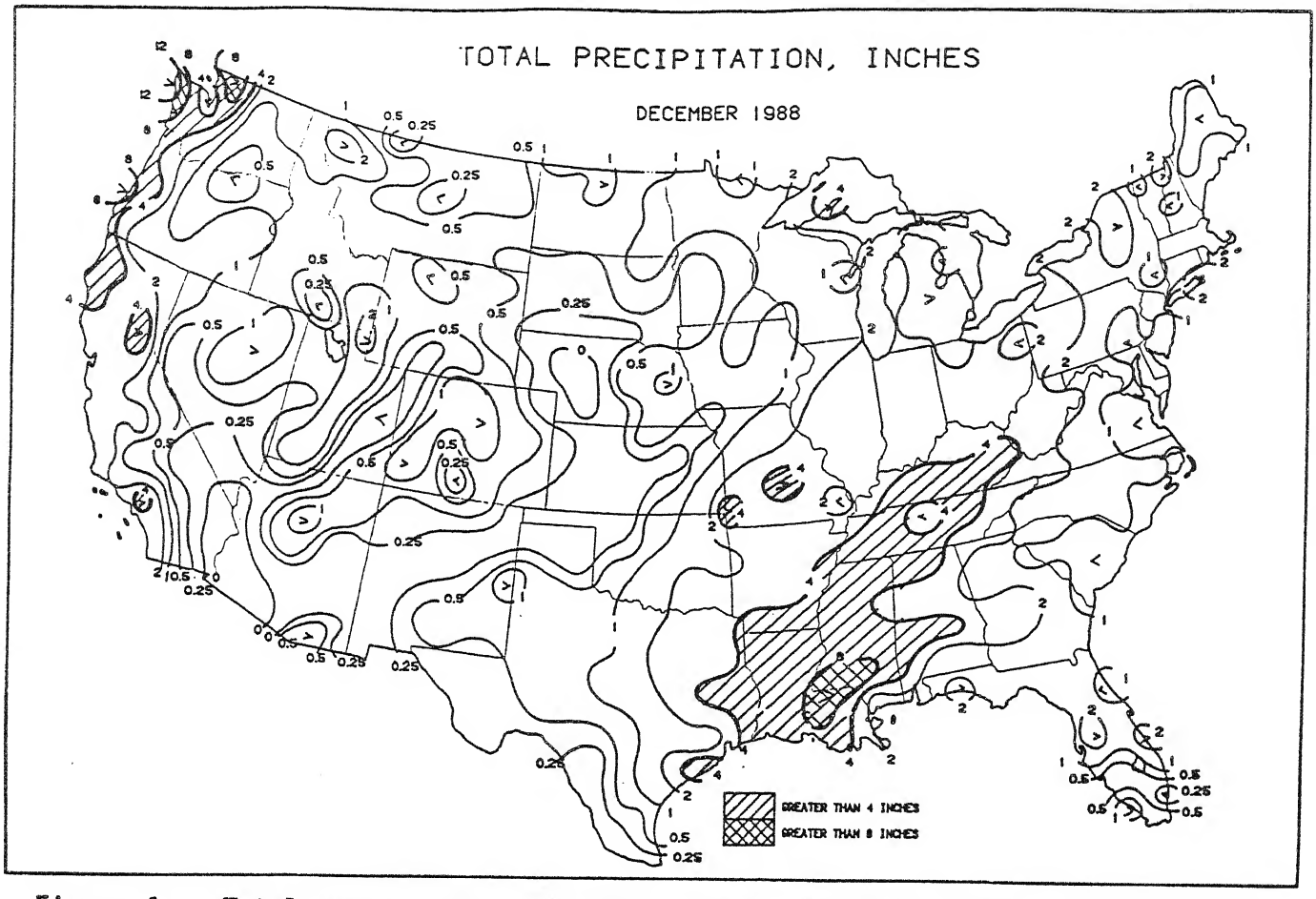


Figure 1. Total precipitation (inches) during December 1988. Single-lined shading depicts areas with 4 to 8 inches of precipitation, and double-lined shading indicates regions with more than 8 inches. The Atlantic Coast, central Great Plains, and Pacific Northwest Interior experienced abnormally dry weather as most stations recorded less than 2 inches of precipitation.

TABLE 1. DECEMBER STATIONS WITH MORE THAN 150% OF NORMAL PRECIPITATION AND MORE THAN FIVE INCHES OF PRECIPITATION; OR, STATIONS WITH MORE THAN SEVEN INCHES OF PRECIPITATION AND NO NORMALS.

Station	Total (in.)	Pct of Normal	Station	Total (In.)	Pct of Normal
Yakutat, AK	30.20	232.7	Jackson, TN	7.52	163.5
Kokee, Kauai, HI	14.92	170.5	Monroe, LA	7.28	150.4
Valdez, AK	14.74	282.9	Memphis NAS, TN	7.09	***
Cordova/Mile 13, AK	11.55	154.2	Honolulu, Oahu, HI	6.69	196.1
Kodiak, AK	10.97	198.7	Cold Bay, AK	6.39	218.1
Kahului, Maui, HI	10.20	372.3	Homer, AK	5.17	199.6
McComb, MS	9.70	***	Palacios, TX	5.15	152.8
Baton Rouge, LA	8.17	163.8			

(Note: Stations without precipitation normals are indicated by asterisks).

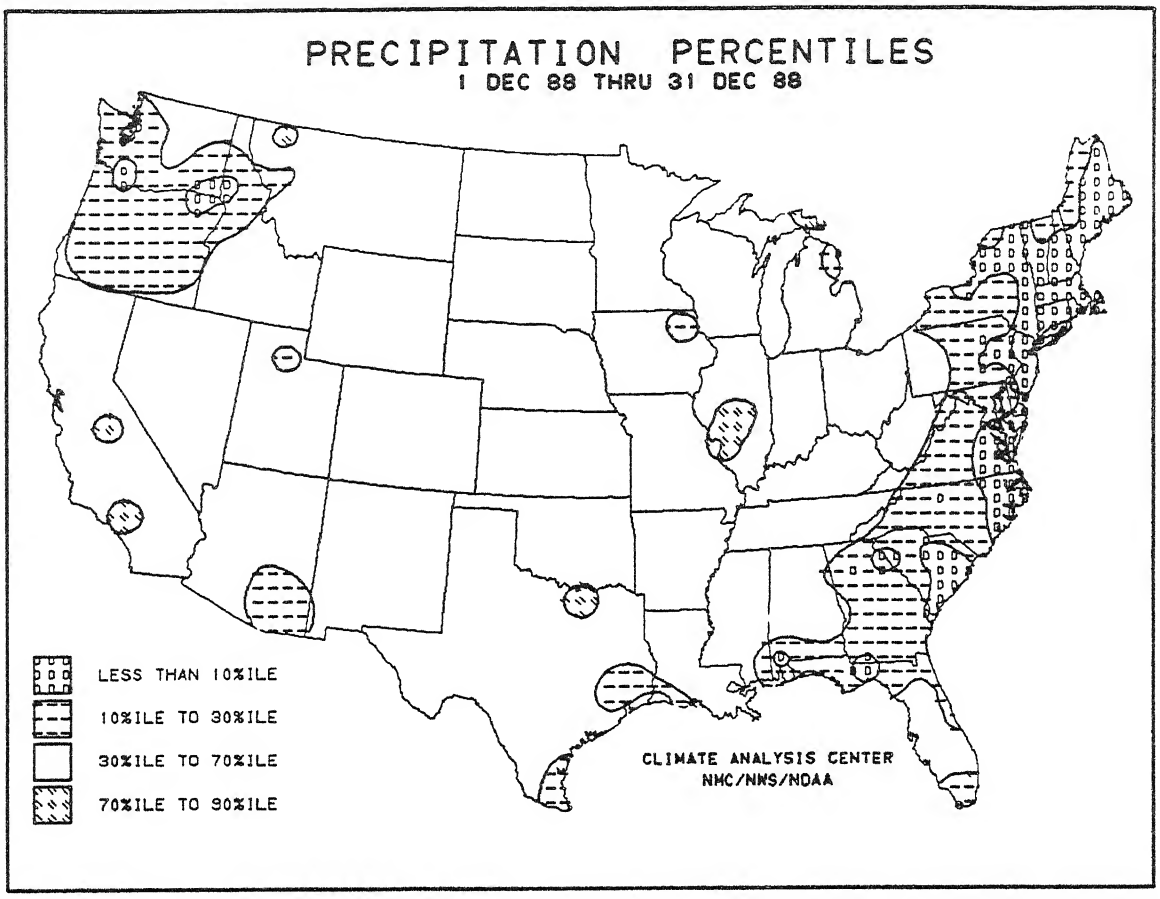


Figure 2. Precipitation percentiles for December 1988. Abnormally dry conditions occurred along the Atlantic Coast and in the Pacific Northwest, while no significantly wet areas (more than 90%ile) were found in the lower 48 states.

TABLE 2. DECEMBER STATIONS WITH LESS THAN 50% OF NORMAL PRECIPITATION AND MORE THAN 3.00 INCHES OF NORMAL PRECIPITATION.

Station	Total (In.)	% of Norm	Norm (In)	Station	Total (In.)	% of Norm	Norm (In)
Macon/Warner-Robins,GA	0.50	11.5	4.35	New York/Kennedy, NY	1.08	29.8	3.62
Dover AFB, DE	0.52	15.9	3.26	Biloxi/Keesler AFB, MS	1.11	22.7	4.89
Rumford, ME	0.57	14.7	3.88	Raleigh-Durham, NC	1.11	35.6	3.12
Hampton/Langley AFB, VA	0.57	17.5	3.26	Williamsport, PA	1.15	35.7	3.22
Atlantic City, NJ	0.60	16.7	3.59	Caribou, ME	1.16	36.9	3.14
Norfolk, VA	0.63	20.0	3.15	Worcester, MA	1.17	27.7	4.22
Wilmington, NC	0.65	18.9	3.43	Augusta, ME	1.17	29.9	3.91
Cape Hatteras, NC	0.67	15.2	4.41	Apalachicola, FL	1.17	33.4	3.50
Salisbury, MD	0.67	18.1	3.71	New York/La Guardia, NY	1.18	32.2	3.66
Poughkeepsie, NY	0.68	21.3	3.20	Greensboro, NC	1.19	35.4	3.36
Seymour-Johnson AFB, NC	0.72	21.9	3.29	Portland, ME	1.20	26.7	4.49
Charleston, SC	0.74	23.9	3.09	Binghamton, NY	1.20	41.7	2.88
Columbia, SC	0.76	21.7	3.50	Atlanta, GA	1.24	29.5	4.20
Newark, NJ	0.78	22.9	3.40	Houston, TX	1.26	33.4	3.77
Sumter/Shaw AFB, SC	0.78	23.9	3.26	Medford, OR	1.28	36.9	3.47
Richmond, VA	0.79	23.4	3.37	Washington/National, DC	1.30	41.1	3.16
Athens, GA	0.82	20.1	4.07	Augusta, GA	1.31	41.2	3.18
Bridgeport, CT	0.87	23.3	3.73	Chatham, MA	1.35	27.2	4.96
Washington/Dulles, VA	0.89	25.6	3.48	Hartford, CT	1.35	32.5	4.15
Wilmington, DE	0.90	25.4	3.54	Bangor, ME	1.37	32.9	4.16
Harrisburg, PA	0.90	27.9	3.23	Asheville, NC	1.41	44.5	3.17
New Bern, NC	0.96	26.0	3.69	Charlotte, NC	1.67	49.4	3.38
Baltimore, MD	0.97	28.6	3.39	Brunswick NAS, ME	1.75	42.2	4.15
Philadelphia, PA	0.98	28.6	3.43	Pensacola, FL	1.78	43.5	4.09
Allenton, PA	0.99	26.8	3.70	Mobile, AL	1.80	33.3	5.41
Wrightstown/McGuire,NJ	1.00	32.5	3.08	Hickory, NC	1.80	47.1	3.82
Boston/Logan, MA	1.02	22.9	4.46	Greenville, SC	1.93	47.8	4.04
Providence, RI	1.03	23.1	4.45	Anniston, AL	2.05	41.1	4.99
Millville, NJ	1.05	28.2	3.72	Portland, OR	2.36	36.9	6.40
Concord, NH	1.05	30.6	3.43	Redding, CA	2.83	40.3	7.03
Lansing, MI	1.05	42.9	2.45	Salem, OR	3.24	45.8	7.08
Tallahassee, FL	1.08	23.7	4.56	Mt. Washington, NH	3.57	40.0	8.92

TABLE 3. DECEMBER AVERAGE TEMPERATURES 4.0°F OR MORE ABOVE NORMAL.

Station	Degrees F Dep	Mean	Station	Degrees F Dep	Mean
McGrath, AK	+15.5	6.4	Grand Island, NE	+5.8	32.5
Fairbanks, AK	+14.2	4.3	Homer, AK	+5.7	27.8
Big Delta, AK	+13.6	9.3	Concordia, KS	+5.6	36.8
Gulkana, AK	+11.9	6.1	Barter Island, AK	+5.6	-6.9
Aniak, AK	+11.7	11.5	Norfolk, NE	+5.2	29.3
Iliamna, AK	+11.3	25.0	Lincoln, NE	+5.0	31.6
Kenai, AK	+ 9.9	21.9	Beeville NAS, TX	+4.9	61.0
Talkeetna, AK	+ 9.4	18.3	Cordova/Mile 13, AK	+4.8	28.4
Bettles, AK	+ 9.0	0.7	Salina, KS	+4.7	37.2
King Salmon, AK	+ 8.8	21.0	Ponca City, OK	+4.5	41.2
Northway, AK	+ 8.6	-8.5	Sitka, AK	+4.5	37.0
Unalakleet, AK	+ 8.1	9.9	Russell, KS	+4.5	36.1
Valdez, AK	+ 7.8	27.0	North Platte, NE	+4.3	30.4
Anchorage, AK	+ 7.7	21.7	Dodge City, KS	+4.1	37.9
Kotzebue, AK	+ 7.0	3.2	Wichita, KS	+4.0	38.5
Bethel, AK	+ 6.7	11.8	Juneau, AK	+4.0	30.9

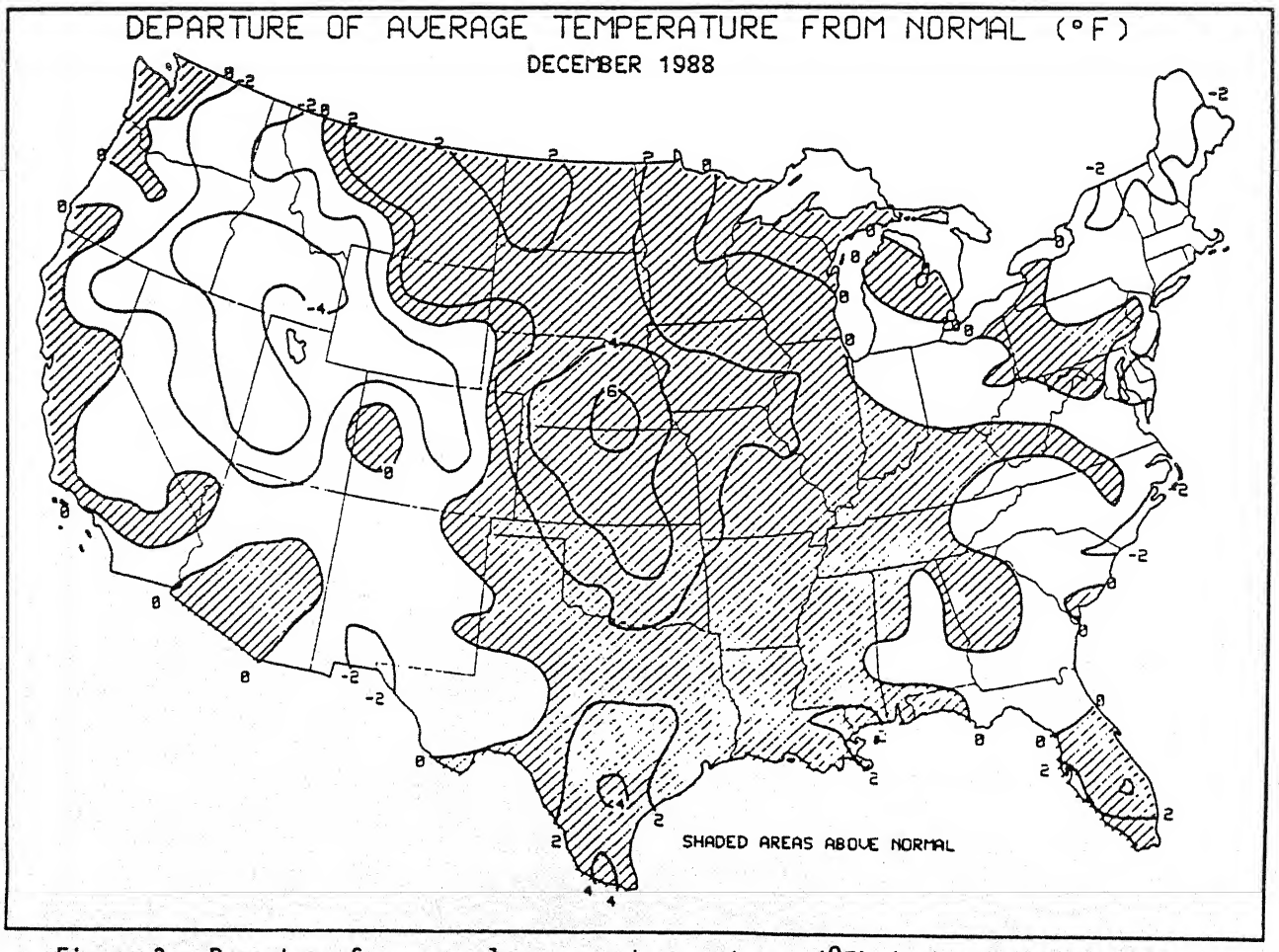


Figure 3. Departure from normal average temperatures (°F) during December 1988. Most of the country observed near normal monthly temperatures except for unseasonably mild weather in the central Great Plains and cold conditions in the Great Basin and northern Intermountain West. Much of Alaska reported above normal temperatures with departures as great as +15°F (not shown).

TABLE 4. DECEMBER AVERAGE TEMPERATURES MORE THAN 3.0°F BELOW NORMAL.

Station	Degrees F Dep	Mean	Station	Degrees F Dep	Mean
Caliente, NV	-7.7	26.2	Meacham, OR	-4.1	25.7
Delta, UT	-5.9	23.7	Cedar City, UT	-4.0	27.1
Pocatello, ID	-5.1	21.7	Walla Walla, WA	-4.0	32.5
Burns, OR	-5.0	22.5	Mt. Washington, NH	-3.8	5.5
Boise, ID	-5.0	27.0	Wenatchee, WA	-3.8	27.9
Idaho Falls, ID	-4.7	17.6	Yakima, WA	-3.6	28.0
Baker, OR	-4.7	23.0	Rock Springs/Sweetwater, WY	-3.1	19.4
Elko, NV	-4.2	21.9	Eastport, ME	-3.0	24.8
Ely, NV	-4.1	22.1			

TABLE 5. RECORD DECEMBER TOTAL PRECIPITATION.

Station	Total (In.)	Normal (In.)	Pct of Normal	Record Type	Records Began
Kahului, Maui, HI	10.20	2.74	372.3	HIGHEST	1947
Kotzebue, AK	1.50	0.35	428.1	HIGHEST	1929
Colorado Springs, CO	0.99	0.30	330.3	HIGHEST	1951
Athens, GA	0.82	4.07	20.1	LOWEST	1951
Norfolk, VA	0.63	3.15	20.0	LOWEST	1947
Atlantic City, NJ	0.60	3.59	16.7	LOWEST	1951

TABLE 6. RECORD DECEMBER AVERAGE TEMPERATURES.

Station	AvgT(°F)	Nml AvgT	Dep Nml AvgT	Type	Records Began
Hilo/Lyman, Hawaii, HI	75.0	72.0	+3.0	HIGHEST	1905

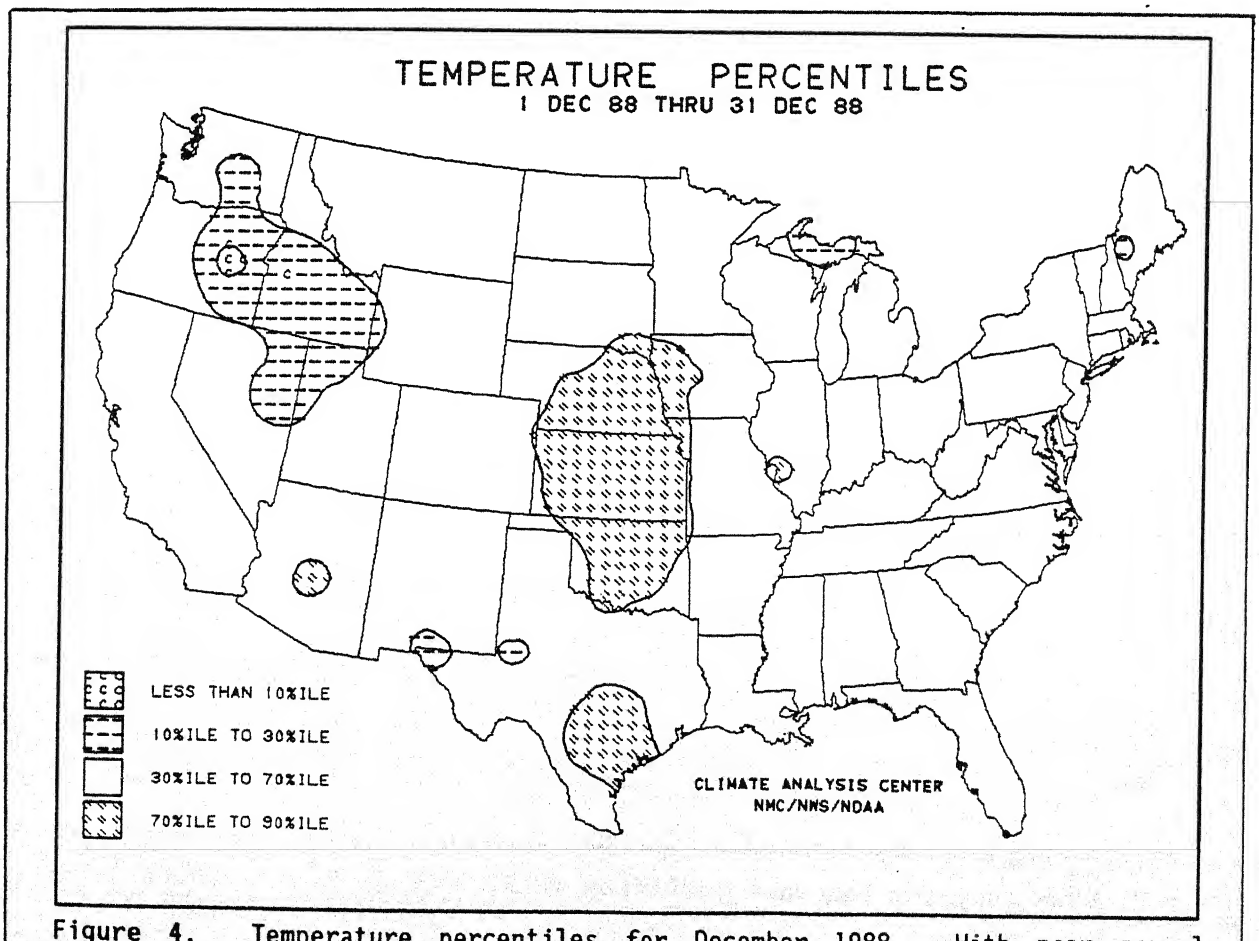
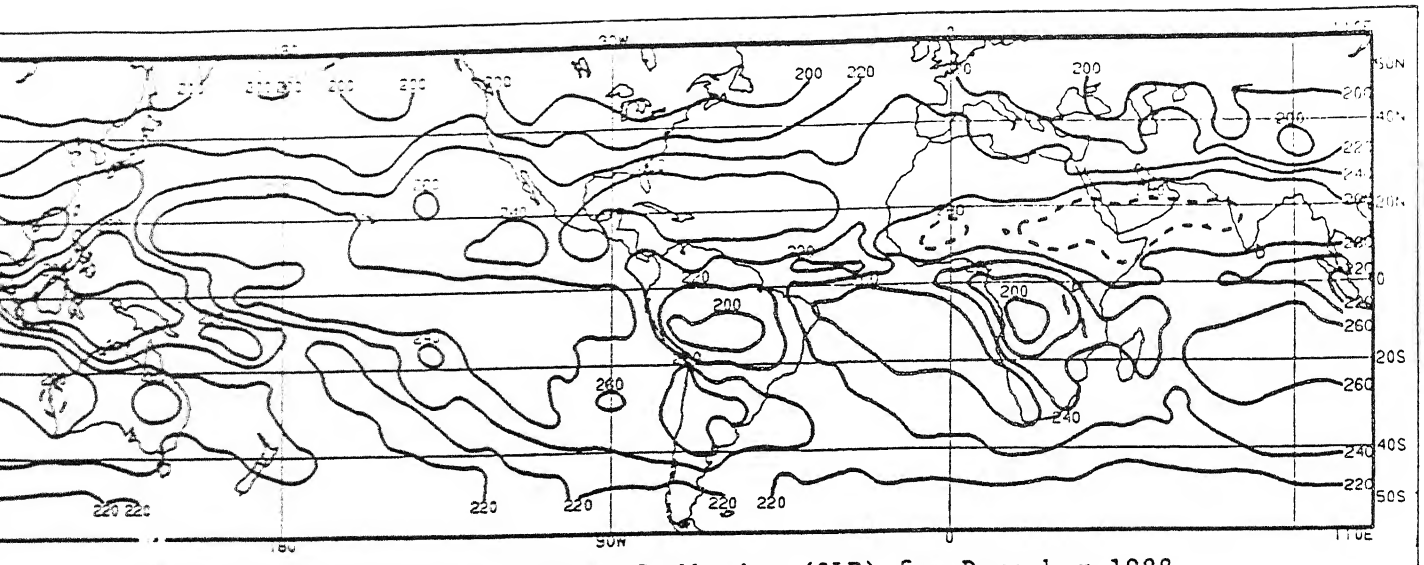


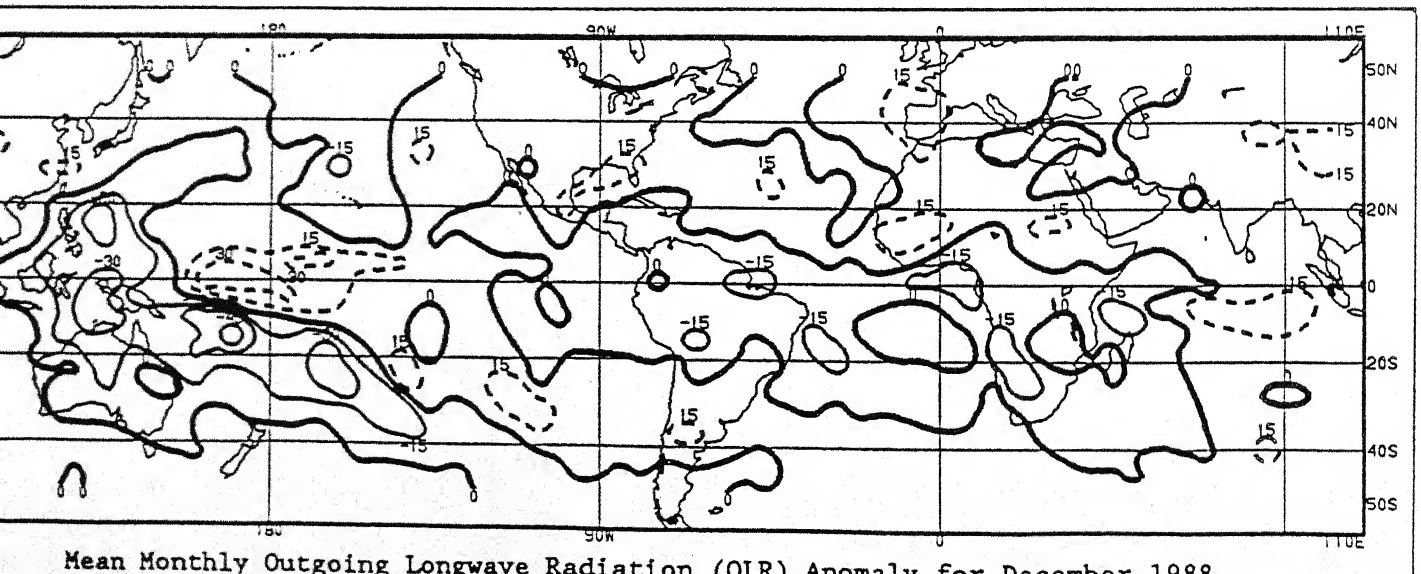
Figure 4. Temperature percentiles for December 1988. With near normal temperatures for much of the contiguous U.S., only the central Great Plains (70%ile-90%ile) and the northern Intermountain West (10%ile-30%ile) had statistically significant temperatures.



Mean Monthly Outgoing Longwave Radiation (OLR) for December 1988.

The mean monthly outgoing long wave radiation (OLR) as measured by the NOAA-9 AVHRR IR window channel y NESDIS/SRL (top). Data are accumulated and averaged over 2.5° areas to a 5° mercator grid for display. ontour intervals are 20 Wm^{-2}, and contours of 280 Wm^{-2} and above are dashed. In tropical areas (for our urposes 20°N-20°S) that receive primarily convective rainfall, a mean OLR value of less than 220 Wm^{-2} is ssociated with significant monthly precipitation, whereas a value greater than 260 Wm^{-2} normally ndicates little or no precipitation. Care must be used in interpreting this chart at higher latitudes, here much of the precipitation is non-convective, or in some tropical coastal or island locations, where he precipitation is primarily orographically induced. The approximate relationship between mean OLR and recipitation amount does not necessarily hold in such locations.

The mean monthly outgoing long wave radiation anomalies (bottom) are computed as departures from the 974-1983 base period mean (1978 missing). Contour intervals are 15 Wm^{-2}, while positive anomalies greater than normal OLR, suggesting less than normal cloud cover and/or precipitation) are dashed and egative anomalies (less than normal OLR, suggesting greater than normal cloud cover and/or precipitation) re solid.



Mean Monthly Outgoing Longwave Radiation (OLR) Anomaly for December 1988.